

REMARKS

Claims 15, 19-20, 24-26, 30 and 40-41 are pending in this application. Claims 15 and 26 are independent. Claims 20 and 24-25 are withdrawn from consideration pursuant to a Restriction Requirement.

The present invention is directed to a piston made of aluminum cast alloy having improved thermo-mechanical fatigue resistance. A Ca content of 0.0005-0.003 mass % provides a desirable fine, homogenous microstructure (texture) that is not achieved outside of this range.

Claims 1, 5-6, 15, 19, 26, 30-31, 35-36 and 39-42 are rejected under 35 U.S.C. § 103(a) over RU 2092604C1 ("RU-604") and "Aluminum standards and data 2003" page 1-6.

RU-604 discloses an aluminum-based alloy containing (in wt.%) "at least one other element selected from group comprising bismuth, barium, antimony, calcium, sodium, potassium and strontium 0.03-0.15". RU-604 at English-language abstract.

"Aluminum standards and data 2003" is cited for disclosing the addition of Na, Sr, Ca and/or P to 3xx and 4xx type Al-Si foundry alloys in order to modify the structure; and that 0.005-0.15% Ca and $\leq 0.060\%$ P are effective modifiers. Final Rejection at page 2, lines 20-23.

Any *prima facie* case for the obviousness of independent Claims 15 and 26 is rebutted by the significant improvement in homogeneous microstructure (texture) that is achieved by the medium Mg (i.e., "Mg (Magnesium): 0.2-2 mass %") embodiments of independent Claims 15 and 26, over the range of "Ca (Calcium) : 0.0005-0.003 mass%". See Second Declaration Under 37 C.F.R. § 1.132 filed November 7, 2008.

Applicants thank the Examiner for the indication that the Second Declaration Under 37 C.F.R. § 1.132 filed November 7, 2008; the Third Declaration Under 37 C.F.R. § 1.132

filed June 27, 2008; and the Fourth Declaration Under 37 C.F.R. § 1.132 filed March 26, 2009, appear to demonstrate criticality over the range of "Ca (Calcium) : 0.0005-0.003 mass%". Final Rejection at section 5.

However, the Final Rejection states:

... [U]pon reviewing all evidence of unexpected results, the examiner states that it is unclear the magnification and exact processing conditions of the examples in said declarations filed 3/26/09, 6/27/08, 11/7/07. Final Rejection at section 5.

The attached Fifth Declaration Under 37 C.F.R. § 1.132 clarifies the magnifications and exact processing conditions of the examples in each of the Second Declaration Under 37 C.F.R. § 1.132 filed November 7, 2008; the Third Declaration Under 37 C.F.R. § 1.132 filed June 27, 2008; and the Fourth Declaration Under 37 C.F.R. § 1.132 filed March 26, 2009.

The cited prior art fails to suggest the significant improvement in homogeneous texture achieved by the present invention over the range of "Ca (Calcium) : 0.0005-0.003 mass%" in the alloys featured in independent Claims 15 and 26.

Thus, any *prima facie* case of obviousness is rebutted. Therefore, the rejection under 35 U.S.C. § 103(a) should be withdrawn.

Pursuant to M.P.E.P. § 821.04(b), after independent product Claim 15 is allowed, Applicants respectfully request rejoinder, examination and allowance of withdrawn method Claims 20 and 24-25, which include all of the limitations of product Claim 15.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 06/04)

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



Corwin P. Umbach, Ph.D.
Registration No. 40,211

Attached: Fifth Declaration Under 37 C.F.R. § 1.132